program code for activating an environment including a first display and a second display, the first display displaying a metafile and the second display displaying a definition file including document type definitions (DTD), wherein the metafile including a number of displayable objects being displayed and respective decoration attributes about each of the displayable objects, and wherein each of the document type definitions includes an identifier;

program code for forming a number of group objects, each of the group objects including one or more of the displayable objects;

program code for associating each of the group objects with the identifier in one of the document type definitions; and

program code for creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects.

Remarks

Claims 1 - 42 are pending. In the Office Action, the Claims 1 - 42 are rejected under 35 USC 103(a) as being unpatentable over Borgendale et al (US Pat. No.: 5,276,793) in view of Japanese Publication – Pub. No.: JP08030619A by Fuji Xerox, both cited references are referred to hereinafter as Borgendale and Fuji Xerox, respectively. The rejections are fully traversed below. Reconsideration of Claims 1 - 42 is respectfully requested based on the following remarks.

Amendments to Title and Specification

The Applicant appreciates the Examiner for the recommended Title and hereby requests that the Title be entered for the pending application. The amendments to the Specification have corrected some informalities, no new matters have been introduced.

Claim Rejections under 35 USC 103

With respect to the rejection to Claim 1 on page 3 of the Office Action, the Examiner believes that a file (Figures 19 - 21 – middle section in each figure) of

Borgendale is equivalent to a metafile in Claim 1. The Applicant respectfully disagrees with the equivalence interpreted by the Examiner.

To illustrate the distinctions between Claim 1 and the cited references, the Applicant wishes to point out that an exact meaning of a metafile is provided in the specification. Lines 4 - 7 of page 18 of the specification states: "A metafile, referring to either the unstructured document or a printed version thereof, typically contains many displayable objects. Each object is a cluster or a group of characters or words or a graphic representation." To illustrate a metafile, an exemplary metafile is provided in Figure 3B in which an object (e.g. 326, 340 or 344) shows a group of characters or words or a graphic representation.

In Borgendale, the "file" which the Examiner compares with the metafile of the pending application is what is called document construction module. As shown in the 1st line of the module in Figure 19, 20 or 21, the document construction module is or includes a document type definition, the middle section thereof is a base type, just one of the definitions in the file. The file or module, very different from a metafile, is used to define how a document shall be displayed, and the file itself is not for display. Further, the file does not include displayable objects (e.g. 326, 340 or 344 in Figure 3B of the pending application) as it is indeed not for display.

Claim 1 recites:

receiving a definition file including document type definitions (DTD);
displaying a metafile along with the definition file, the metafile including a number of displayable objects being displayed and respective decoration attributes about each of the displayable objects;
associating at least one of the definitions in the definition file with one of the displayable objects; and
creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects.

(*emphasis added*)

As recited in Claim 1, the metafile including a number of displayable objects is displayable (being displayed) while the "file" in Borgendale is not. Steps 252 and 254 in the flowchart of Figure 22 in Borgendale further support that the "file" or module is loaded in for constructing element hierarchy. Clearly, Borgendale does not teach or suggest characteristics a metafile has as recited in Claim 1.

Further, step 270 in the flowchart of Figure 22 in Borgendale exports the edited document through printing while the edited document is constructed from a structured document (step 258) through a document construction module (step 252) for the presentation purpose. However, the once-amended Claim 1 illustrates the purpose for creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects. The metafile is for creating, modifying, or converting a structured document as the example shown in Figure 2C instead of for presentation of an existing structured document. In some respect, Borgendale teaches away from the features recited in the once-amended Claim 1.

Fuji Xerox shows that a document is displayed together with a (document) structure thereof. The document is displayed as 41 and the structure is displayed as 42 in Figure 4. The structure shows how the document is structured. Figure 5 shows the expansion of the document in 41, so does the corresponding structure in 42. Given the above explanation of a metafile, none of the document or the structure could be possibly extended in any way to be a metafile. The features in the once-amended Claim 1 are evidently neither taught nor suggested by Borgendale and Fuji Xerox, either alone or in combination. The Applicant respectfully requests that the Examiner reconsider the rejection of Claim 1 and corresponding dependent claims 2 - 14 in view of the foregoing stated arguments and distinctions between the once-amended Claim 1 and the cited references.

Regarding Claim 15, the Applicant wishes to apply the above reasons to support the once-amended Claim 15. In addition, none of the cited references Borgendale and Fuji Xerox, either alone or in combination, teaches or suggest forming a number of group objects, each of the group objects including one or more of the displayable objects. Lines 40 - 46 on Column 8 of Borgendale, relied upon by the Examiner, are

related to a document construction module. Given the reasons stated above, the document construction module is not for display and further contains no displayable objects that can be grouped. Accordingly, the Applicant respectfully requests that the Examiner reconsider the rejection of Claim 15 and corresponding dependent claims 16-24 in view of the foregoing stated arguments and distinctions between the once-amended Claim 15 and the cited references.

Independent Claims 25 and 39 are computer program product claims, mirroring the preceding method claims. Accordingly, the Examiner rejects the Claims 25 and 39 and the corresponding dependent claims 26 - 38 and 40 - 42 using the similar reasons. Hence, the Applicant respectfully requests that the Examiner reconsider the rejections of Claim 25 - 42 in view of the foregoing arguments.

In view of the above amendments and remarks, it is believed by the Applicant that the pending claims 1 - 42 shall be in condition for allowance over the cited references. Therefore, it is believed that the entire application is now in condition for allowance, early and favorable action is being respectfully solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplementary Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at (408)777-8873.

Dated this 24th day of July, 2001

Joe Zheng
Reg. No.: 39,450

Version with markings to show changes made

In the Title

1. Please replace the original title with the following new title:

Method and Apparatus for Utilizing Document Type Definition to Generate Structured Documents

wherein the original title:

[Method and Apparatus for Generating Structured Documents for Various Presentations]

In the Specification

1. The following paragraph replaces the original paragraph that begins on page 5, line 17, and ends on page 6, line 2 of the specification:

> In addition, the procedures required by the exemplary editors are somehow tedious and laborious and [are] can be inherently of high cost. Quite often, a business that has many documents to convert has to outsource the process due to the inefficiency and slowness associated with the conversion process. On the other end, the conversion process conducted by a service provider is difficult to be quantified as it is mainly involved in manual and repeated processes depending on the complexities of the documents. There is thus another need for a mechanism for quantifying the conversion of the unstructured documents to structured documents for various presentations in a cost-determinable way.

2. The following paragraph replaces the original paragraph that begins on page 15, line 14, and ends on page 15, line 24 of the specification:

> FIG. 2A illustrates an example of an unstructured document **200** that may be composed, edited or managed by an authoring tool. In an unstructured document, data is generally presented in sequence, which usually follows a reading order (e.g. from top to bottom and left to right). This sequence may be parsed into segments of data elements, where each data element **[102] 202** is

assigned with decoration attributes or information such as positions, font color, font size, font type, style and various effects and etc. The decoration information is essentially for proper layout and presentation purpose when a file containing the data elements is opened by the authoring tool for display on a display screen.

3. The following paragraph replaces the original paragraph that begins on page 16, line 21, and ends on page 17, line 9 of the specification:

Unlike the unstructured document, the structured document can easily access certain information via the document elements. Presentation of a structured document is usually defined in separate style sheets, e.g., written in cascading style sheet (CSS) or extensible style language for formatting objects (XSL-FO), which interprets layout for each document element. This feature allows a structured document to be presented in different layouts for different media through different style sheets. Generally, the decoration information or formatting attributes, such as font information in an unstructured document, unless defined in DTD as attributes of document elements, are abandoned after an unstructured document is converted into a corresponding structured document. Further modification of formatting information will in general not affect the converted structured documents.

4. The following paragraph replaces the original paragraph that begins on page 17, line 10, and ends on page 17, line 21 of the specification:

FIG. 3A illustrates a functional diagram **300** according to one embodiment of the present invention. A conversion module **302** comprises an association module [**302**] **304** and an integration module **306**. Association module [**302**] **304** receives an unstructured document, preferably in a metafile format. At the same time, association module [**302**] **304** also receives a file, referred to as a definition file [,]including DTD that are predefined. Generally, DTD is defined according to the nature or purposes of the unstructured document. For example, the unstructured document is in a category of receipts, e.g. document **200** in FIG. 2A, the DTD in a definition file as shown in FIG. 2B is designed in accordance to the "receipt-type" documents.

5. The following paragraph replaces the original paragraph that begins on page 17, line 22, and ends on page 18, line 18 of the specification:

To further understand association module [**302**] **304**, FIG. 3B shows an environment **320** implementing conversion module **302** according to one embodiment of the present invention. Environment **320** includes two displays **322** and **324** for a user to perform a conversion of an unstructured document to a file in markup language (referring to a markup language file). Display **322** is used to display the unstructured document. In one preferable embodiment, a metafile version of the unstructured document is loaded for display. A metafile, referring to either the unstructured document or a printed version thereof, typically contains many displayable objects. Each object is a cluster or a group of characters or words or a graphic representation. As shown in display **322**, each word or an isolated numeral is a displayable object which is inherently carried over in the metafile. In other words, each object is defined by a number of attributes or decoration information including, but not limited to, type, size, color and position of the object such that it can be "printed" correctly. A number of objects can be grouped manually by a user in terms of their meanings or purposes. For example, group object **326** includes three character-type objects "Green", "Chili" and "Salsa". Naturally the three character-type objects forms a title as a group object **326**. The object grouping may be performed for the rest of the displayed metafile in display **322**.

6. The following paragraph replaces the original paragraph that begins on page 18, line 19, and ends on page 18, line 24 of the specification:

Display **324** is used to display a definition file prepared for the metafile in display **322**. To facilitate operations of association module [**302**] **304**, the definition file is presented graphically as "DTD Pool" **328**. For example, the graphical representation **328** of DTD **208** in FIG. 2B is used in display **324** to illustrate the hierarchical relationships among the document elements.

7. The following paragraph replaces the original paragraph that begins on page 22, line 4, and ends on page 22, line 10 of the specification:

FIG. 3E shows a process flowchart **370** of using a product including an implementation of conversion module **302** according to one embodiment of the present invention. [Some time] Sometimes, the product is leased by a user or a business. Other times, the product is used by a service provider providing

services to businesses that need to convert unstructured documents to structured documents for different media presentation (e.g. presentation on a web site).

8. The following paragraph replaces the original paragraph that begins on page 26, line 7, and ends on page 26, line 16 of the specification:

FIG. 6 shows an editing result **600** for the unstructured document **200** of FIG. 2A. Each parsed data element or combined objects **602**, **604**, **606**, **608**, **610**, **612** and **614** [has] have been assigned respectively font attributes based on the association table in FIG. 5 and displayed respectively in the associated font. During the parsing, this module allows sequence selections of data elements based on the reading order of the input document **602** to edit their font information. This module also allows region grouping of data elements to edit their font information. This module can also provide an auxiliary view of the association table.

In the Claims

Please amend Claims 1, 2, 15, 25, 26 and 36 as follows:

1. (*once amended*) A method for producing a structured document[s], the method comprising:

receiving a definition file including document type definitions (DTD);

displaying a metafile along with the definition file, the metafile including a number of displayable objects being displayed and respective decoration attributes about each of the displayable objects; [and]

associating at least one of the definitions in the definition file with one of the displayable objects; and

creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects.

2. *(once amended)* The method of claim 1 further comprising:

generating a modified metafile that includes the displayable objects, each of the displayable objects being modified in accordance with [being associated with] the at least one of the definitions in the definition file.

15. (*once amended*) A method for producing a structured document[s], the method comprising:

activating an environment including a first display and a second display, the first display displaying a metafile and the second display displaying a definition file including document type definitions (DTD), wherein the metafile including a number of displayable objects being displayed and respective decoration attributes about each of the displayable objects, [and] wherein each of the document type definitions includes an identifier;

[grouping] forming a number of group objects, each of the group objects including [a number] one or more of the displayable objects; and

associating each of the group objects with the identifier in one of the document type definitions; and

creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects.

25. (*once amended*) A machine-readable medium embodying instructions for execution by a processor, the instructions, when executed by the processor, causing the processor to produce a structured document[s], the machine-readable medium comprising:

program code for receiving a definition file including document type definitions (DTD);

program code for displaying a metafile along with the definition file, the metafile including a number of displayable objects being displayed and respective decoration attributes about each of the displayable objects; [and]

program code for associating at least one of the definitions in the definition file with one of the displayable objects; and

program code for creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects.

26. (*once amended*) The machine-readable medium of claim 25 further comprising:

program code for generating a modified metafile that includes the displayable objects, each of the displayable objects being modified in accordance with [being associated with] the at least one of the definitions in the definition file.

39. (*once amended*) A machine-readable medium embodying instructions for execution by a processor, the instructions, when executed by the processor, causing the processor to produce a structured document[s], the machine-readable medium comprising:

program code for activating an environment including a first display and a second display, the first display displaying a metafile and the second display displaying a definition file including document type definitions (DTD), wherein the metafile including a number of displayable objects being displayed and respective decoration attributes about each of the displayable objects, and wherein each of the document type definitions includes an identifier;

program code for [grouping] forming a number of group objects, each of the group objects including [a number] one or more of the displayable objects; [and]

program code for associating each of the group objects with the identifier in one of the document type definitions; and

program code for creating the structured document from the metafile in accordance with the at least one of the definitions being associated with the one of the displayable objects.